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This study investigates the division artillery's ability to provide effective fire support at the Battle Command Training Program (BCTP) from 1992 through 1994 by analyzing exercises according to the four basic tasks of fire support. The five fundamentals for organizing field artillery for combat and the fire support planning principles are used to determine why the basic tasks for fire support were not accomplished. This study also examines reasons why some artillery units did not conduct operations according to doctrine. The author concludes that DIVARTYs that do not follow doctrine will not provide effective fire support. Furthermore, field artillery doctrine does not have to be revised; it just has to be understood and followed. The author recommends that lessons learned from BCTP exercises receive more visibility. This will help units identify recurring problems and prevent personnel from making these same mistakes through effective training.

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FIELD ARTILLERY DOCTRINE AND ORGANIZATION FOR COMBAT: LESSONS LEARNED AT THE BATTLE COMMAND TRAINING PROGRAM

A thesis presented to the Faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE

by

JOHN TAYLOR, MAJ, USA
B.S., United States Military Academy, West Point, New York, 1985

Fort Leavenworth, Kansas
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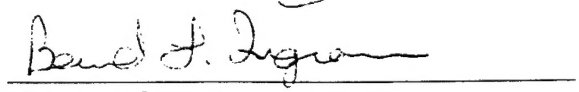
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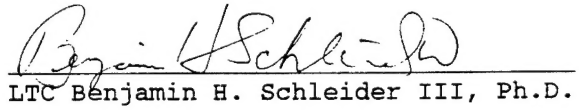
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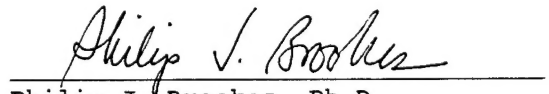
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ABSTRACT

FIELD ARTILLERY DOCTRINE AND ORGANIZATION FOR COMBAT: LESSONS LEARNED AT THE BATTLE COMMAND TRAINING PROGRAM by MAJ John Taylor, USA, 86 pages.

This study investigates the division artillery's ability to provide effective fire support at the Battle Command Training Program (BCTP) from 1992 through 1994 by analyzing exercises according to the four basic tasks of fire support. The five fundamentals for organizing field artillery for combat and the fire support planning principles are used to determine why the basic tasks for fire support were not accomplished. This study also examines reasons why some artillery units did not conduct operations according to doctrine.

The author concludes that DIVARTYs that do not follow doctrine will not provide effective fire support to maneuver units. Furthermore, field artillery doctrine does not have to be revised; it just has to be understood and followed.

The author recommends that lessons learned from BCTP exercises receive more visibility. This will help units identify recurring problems and prevent personnel from making these same mistakes through effective training.

ACKNOWLEDGEMENTS

First, I would like to thank my wife, Lisa, whose loving encouragement and understanding kept me going. She spent the "best year of our life" looking at the back of my head while I sat in front of the computer working on this thesis. For this sacrifice, I am deeply grateful.

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LIST OF ACRONYMS

AAR	After Action Review
AI	Air Interdiction
AO	Area of Operations
BAI	Battlefield Air Interdiction
BCTP	Battle Command Training Program
BOS	Battlefield Operating System
CALL	Center for Army Lessons Learned
CAS	Close Air Support
CFFZ	Call-For-Fire Zone
CFL	Coordinated Fire Line
CFZ	Critical Friendly Zone
COLT	Combat Observation/Lasing Team
DIVARTY	Division Artillery
DS	Direct Support
EW	Electronic Warfare
FA	Field Artillery
FIST-V	Fire Support Team Vehicle
FLOT	Forward Line of Own Troops
FM	Field Manual
FSCOORD	Fire Support Coordinator
FSE	Fire Support Element
GS	General Support

GSR	General Support Reinforcing
HPT	High Payoff Target
HVT	High Value Target
JAAT	Joint Air Attack Team
J-SEAD	Joint Suppression of Enemy Air Defense
METT-T	Mission, Enemy, Troops, Terrain and weather, and Time available
MLRS	Multiple Launch Rocket System
R	Reinforcing
SEAD	Suppression of Enemy Air Defense
SOP	Standing Operating Procedures
TCAE	Technical Control and Analysis Element
TACFIRE	Tactical Fire Direction System
TOC	Tactical Operations Center
TOE	Table of Organizational Equipment
UAV	Unmanned Aerial Vehicle

CHAPTER 1

INTRODUCTION

> The mission of field artillery is to destroy, neutralize, or suppress the enemy by cannon, rocket, and missile fire and to help integrate all fire support assets into combined arms operations.
>
> Field Manual (FM) 6-20, Fire Support in the Airland Battle

Throughout the ages, infantrymen have relied upon fire support to assist them in accomplishing their wartime mission. Many years ago this fire support was provided solely by field artillery units. Today; however, with the developments in helicopters, airplanes, ships, and electronic warfare, field artillery, military intelligence, Army aviation, Air Force, and Navy units all provide fire support. These highly diverse fire support assets must be properly coordinated to ensure effective fire support is provided to the maneuver force. The field artillery has the dual mission of integrating all fire support available to the force commander and providing field artillery fires.[1] Coordinating all the different aspects of fire support is not an easy task for the division artillery (DIVARTY) staff. Training provides the DIVARTY staff with the ability to accomplish this complex task. This training is accomplished and evaluated in many different ways, such as field training exercises, command post exercises, and unit exercise rotations at the Battle Command Training Program (BCTP).

Unfortunately, units have not always provided effective fire support to the maneuver force at BCTP. Because the Army fights as it trains, units that are not able to provide effective fire support at BCTP will not provide effective fire support on future battlefields. Everyone, especially field artillerymen, must understand why units are not successful at BCTP. There are two areas that directly affect a unit's ability to successfully provide fire support at BCTP: doctrine and training. If the doctrine is not sufficient, then it must be revised. If the units are not properly trained, then these deficiencies must be rectified.

This thesis analyzes current U.S. Army field artillery doctrine and compares it to unsuccessful unit BCTP results to determine why some DIVARTYs were not able to achieve the complex task of providing effective fire support. As part of this doctrinal review, this paper will access current doctrine, specifically, the basic tasks of fire support, the five fundamentals for organizing field artillery for combat and the fire support planning principles. DIVARTYs cannot expect to be successful if they do not organize themselves correctly on the battlefield and do not properly plan for the mission they are given. This analysis will evaluate the effectiveness of fire support for each of the fourteen rotations from 1992 through 1994. Using the basic tasks of fire support outlined in FM 6-20, Fire Support in the Airland Battle, as a framework for analysis. These basic tasks provide a frame of reference to evaluate the overall effectiveness of the fire support system.[2]

This thesis analyzes the unsuccessful rotations by evaluating the unit's ability to properly organize their subordinate units for combat and their ability to utilize the fire support planning principles. Finally, the thesis will examine the reasons why some units did not conduct operations according to field artillery doctrine. This analysis will utilize the successful rotations to highlight the validity of current field artillery doctrine by showing that utilization of current doctrine will yield successful results. Interviews with personnel from the United States Army Field Artillery School and BCTP will help determine why units operated the way they did. This is a brief summary of the methodology that this thesis will follow. A more thorough discussion of the methodology is included in chapter 3.

Research Questions

The thesis assesses current field artillery doctrine, analyzes successful and unsuccessful BCTP rotations, and determines whether or not the doctrine should be revised. To adequately examine this issue, the thesis will explore the following questions in depth:

1. How can commanders determine the effectiveness of fire support?

2. How are successful units conducting operations at BCTP?

3. Are successful DIVARTYs conducting operations at BCTP in a nondoctrinal manner?

4. Why are some units unsuccessful at providing fire support at BCTP?

5. Is current field artillery doctrine adequate?

This analysis employs various primary and secondary sources to answer the research questions. FM 6-20, Fire Support in the Airland Battle, establishes the basic principles of fire support.[3] FM 6-20-30, Fire Support in Corps and Division Operations, demonstrates how the principles of fire support contained in FM 6-20 are applied and practiced at the division and corps levels.[4] These two manuals contain the basic fire support doctrine that division artillery units should use to conduct their warfighting effort. FM 71-100, Division Operations, provides doctrine for planning and conducting operations at division level. FM 71-100 applies to personnel at the division level and also those subordinate personnel that support the division, such as the DIVARTY staff. In addition to these manuals, professional journals, such as the Field Artillery and the Military Review provided excellent information on field artillery doctrine, tactics, and strategy. This information includes lessons learned by division artillery units in Operation Desert Storm, operational issues involved with training and preparing for war, and many other topics.

The BCTP After Action Reviews (AARs) provide an extensive amount of information on each rotation. It is very easy to determine why a battle or mission was successful by reading through the AAR. All the tasks and subtasks that were performed incorrectly which led to the failure of the mission are clearly stated. In addition to BCTP AARs on each rotation, BCTP annually publishes division/corps level perceptions and talking points that highlight specific tasks that must be properly performed to create the conditions for a successful rotation.

Finally, interviews of Battle Command Training Program personnel provided valuable insights on field artillery operations and doctrine. Moreover, interviews provide current and useful information on how units are training and fighting. This information is very helpful when determining why units conducted operations in the manner they did.

Field artillery doctrine specifies four basic tasks that FSCOORDs must fulfill to ensure that the fire support they provide enable the force commander to maneuver his forces according to his concept of the operation. Those FSCOORDs that fulfilled these four basic tasks provided effective fire support and had successful BCTP exercises. Furthermore, during these rotations, effective fire support enabled the force commander to maneuver his forces in the manner outlined in his concept for the operation. FSCOORDs that did not follow the doctrine did not provide effective fire support and did not have successful BCTP exercises. Ineffective fire support did not allow the force commander to maneuver his forces consistent with the force commander's intended scheme of maneuver.

This analysis further discloses that many individuals currently assigned to field artillery units have been away from field artillery doctrine for a number of years prior to their current assignment and do not fully understand the doctrine and principles of field artillery operations. More significantly, BCTP exercise results demonstrate that many field artillery individuals do not adequately recall and apply doctrine. The BCTP exercise results indicate conclusively that successful units at BCTP properly employ doctrine

provided in FM 6-20 and FM 6-20-30 and unsuccessful units do not. Moreover, lessons learned from field artillery operations in Desert Storm did not influence the way units conducted operations during BCTP exercises. Inadequate training was responsible for units not adhering to doctrine during field artillery operations--not bad habits or lessons learned during Desert Storm. Moreover, if the findings of this thesis are accurate, reviewing both this thesis and after action reviews from previous BCTP exercises prior to the training and conduct of BCTP exercises could eliminate many of the mistakes that are currently being made during BCTP exercises.

Assumptions

This thesis assumes that the methods utilized at BCTP in determining the results of field artillery fires is effective and efficient. The length of this thesis does not lend itself to fully examining the methods utilized at BCTP in determining the level of effects achieved by field artillery fires. However, because soldiers fight the way they train, proper employment of field artillery doctrine during BCTP exercises enhances the Army's ability to fight in war. Moreover, leaders will alter the way they employ their fire support assets based on the results they achieve during training exercises, such as BCTP.

Definition of Terms

To enhance the readability of this document, all key terms and acronyms are explained as they occur. Comprehensive lists of all key terms and acronyms are included as separate appendixes.

Limitations

One limitation encountered during the research process of this analysis was the availability of AARs for the most recent training exercises conducted in 1995; however, the numerous AARs that were available for 1992 through 1994 were sufficient for the analysis of the thesis. It is understandable that the finalized AARs are not immediately available for the military community to review as soon as the training exercise concludes.

Delimitations

AARs of BCTP exercises conducted from 1992 through 1994 comprise the basic data for the study. The AAR format is consistent from 1992 through 1994; however, a different format was used to prepare the AARs prior to 1992. The fourteen rotations during this three-year period is sufficient for the purposes of the analysis to clearly study the BCTP unit trends using similarly organized AARs. Using similarly organized AARs tremendously help in the analysis and comparison of the rotations. Furthermore, these fourteen rotations provide a good indication of how maneuver commanders and fire support coordinators organized their field artillery for combat and utilized the fire support planning principles.

Significance of the Study.

Current doctrine must be continually assessed for its validity. One of the tools available for this assessment is reviewing the actions of units in training exercises at BCTP.

Extensive AARs are readily available to conduct this assessment. This thesis will provide the field artillery community with a critical review of its current field artillery doctrine concerning the organization of field artillery units for combat and the fire support planning principles. This thesis will analyze fourteen BCTP exercises and determine why some FSCOORDs participating in BCTP exercises provide adequate fire support that enables force commanders to maneuver their forces in the intended manner and why some FSCOORDs do not provide adequate fire support to the force commander which contributes to unsuccessful rotations. The study is of significance to the field artillery community because it will identify common reasons for FSCOORDs having unsuccessful rotations. FSCOORDs can review this thesis prior to participating in BCTP exercises to learn from the mistakes of others. Review of this analysis should dramatically improve the performance of FSCOORDs at BCTP exercises and increase the effectiveness of the fire support that they provide to the force commander.

Endnotes

[1]US Army, FM 6-20-30, Tactics, Techniques, and Procedures for Fire Support for Corps and Division Operations (Washington: Department of the Army, 1989), 1-3.

[2]US Army, FM 6-20, Fire Support in the Airland Battle (Washington: Department of the Army, 1988), 1-3.

[3]Ibid., v.

[4]Ibid.

CHAPTER 2

LITERATURE REVIEW

The literature that governs the organization of field artillery units for combat at the division artillery level is primarily contained in FM 6-20, Fire Support in the Airland Battle and FM 6-20-30, Tactics, Techniques, and Procedures for Fire Support for Corps and Division Operations. These manuals contain official U.S. Army doctrine. Army doctrine is not static, however, and it is constantly being reviewed, analyzed, and developed in Army schools such as the Field Artillery School. Periodicals, such as the Field Artillery Journal and Military Review provide keen insights into the thrust and scope of doctrinal debates and revisions.

FM 6-20 describes the four basic tasks for fire support which provide the framework for determining if fire support is effective. These four tasks are applicable to all fire support personnel assigned to division artillery units and they are instrumental in determining why fire support provided to a force commander is adequate or inadequate. Adequate fire support leads to the overall success of the BCTP exercise and inadequate fire support contributes to unsuccessfull BCTP exercises. These four basic tasks--support forces in combat, support the force commander's battle plan, synchronize fire support, and sustain fire support--are used to evaluate the effectiveness of fire support are

discussed in detail below. Field artillery doctrine states that these four basic tasks are used to determine the effectiveness of the fire support provided to a force commander.[1]

Support forces in combat. Field artillery units support forces in contact by providing fire support in the close, deep, and rear areas. An adequate amount of fire support must be allocated to support the maneuver forces in the close battle. Usually field artillery battalions assigned the tactical mission of direct support provide this fire support. The fires from direct support field artillery battalions are supplemented by fires from field artillery battalions assigned tactical missions of reinforcing or general support reinforcing. Deep fires must disrupt, delay, and destroy the enemy follow on forces in accordance with the maneuver commander's intent before those enemy forces can take part in the close battle fight. Counterfire must destroy, neutralize, or suppress the enemy indirect fire weapons in accordance with the maneuver commander's intent. Fire support assets must aggressively suppress all known enemy air defense weapon systems immediately prior to and during the flights of all friendly aircraft crossing the forward line of own troops (FLOT) to enhance the survivability of these assets. Responsive fire support must protect and ensure freedom of maneuver to forces in contact with the enemy in deep, close and rear operations.[2]

Support the force commander's battle plan. The fire support system must be responsive to and thoroughly support the maneuver commander's concept of the operation. The Fire Support Coordinator (FSCOORD) must ensure that the maneuver commander has an adequate amount

of fire support assets readily available to influence the battle quickly and decisively whenever required. This is generally accomplished by assigning general support or general support reinforcing tactical missions to subordinate artillery battalions. At BCTP, the division artillery force headquarters would assign these tactical missions to battalions from the reinforcing field artillery (FA) brigade if a FA brigade is available to reinforce the division artillery. The FSCOORD must ensure that there are enough fire support assets available to engage high payoff targets throughout the depth of the battlefield, to conduct the counterfire battle, and to support the rear area with fires when necessary. These fire support assets include both lethal and nonlethal means of attack. The FSCOORD must utilize all of these assets to maximize the effects of indirect fires on the enemy.

Synchronize fire support. The FSCOORD synchronizes all of the fire support assets to attack the enemy with the most combat power available. It is essential that development of fire support plans occurs concurrently with the development of the scheme of maneuver.[3] As the scheme of maneuver changes, it is also essential that the FSCOORD revise the fire support plan to reflect the changes. Also, the successful use of the decide-detect-deliver-assess methodology to targeting and battle management enables the FSCOORD to attack the right target with the best weapon at the right time.[4] During all exercises at BCTP, there are more potential targets on the battlefield for the FSCOORD to attack than there are fire support assets available for him to use. The FSCOORD must properly utilize the decide-detect-deliver-access methodology to ensure that the high payoff targets are properly

engaged. The FSCOORD is responsible for the synchronization of all the fire support assets available to him. The FSCOORD also synchronizes the fire support system with the other BOSs during the rehearsal of the fire support plan and the operations plan.

Sustain fire support. The accomplishment of this task ensures the survivability of the entire fire support system. It involves more than just providing fuel, food, and ammunition to all fire support units. Besides providing the logistical support required, the FSCOORD must provide the required technical support. This includes ensuring redundancy in command and control facilities, continuous training of fire support personnel, mobility and proper emplacement of firing systems, and rapid dissemination after verification of accuracy of technical aspects of fire support such as meteorological data.[5] The FSCOORD must also ensure that the fire support system is adequately protected. Protection of fire support assets, such as radars, is achieved by augmenting them with a security force and allocating engineer assets to assist with building more survivable positions. During BCTP rotations, it is critical for the FSCOORD to ensure that all fire support assets receive proper protection because more assets are not available when assets are destroyed. If the fire support system is not protected, then it will become decisively engaged and destroyed. When the fire support assets are destroyed, the fire support system will fail to achieve its mission which will in turn most likely prevent the maneuver force commander from accomplishing his mission.

The five fundamentals for organizing field artillery for combat described in FM 6-20 and FM 6-20-30 include: adequate fire

support for committed combat elements, weight the main attack in the offense or the most vulnerable area in the defense, facilitate future operations by giving on order missions based on the next single most likely event to occur, immediately available fire support with which the force commander can influence the action, and maximum feasible centralized control. These currently accepted doctrinal fundamentals are discussed in detail below.

Adequate fire support for committed combat elements. The minimum adequate support for committed units is one FA battalion in direct support of each committed maneuver brigade.[6] FA units are most responsive to the maneuver force when given a tactical mission of direct support. During some BCTP rotations, the maneuver force has an attached maneuver unit that conducts the covering force battle. When this occurs, the FSCOORD must ensure that this maneuver unit also has an adequate amount of responsive fire support assets especially during the very complex task of conducting the battle handover.

Weight the main attack in the offense or the most vulnerable area in the defense. The FSCOORD can accomplish this by using several different methods. The FSCOORD can assign field artillery battalions from the reinforcing FA brigade tactical missions of reinforcing or general support reinforcing to augment the fires of the direct support artillery battalion that is providing fires to the maneuver force in the main effort. Artillery battalions that are assigned the tactical missions of general support are positioned and assigned a direction of fire to concentrate fires in the appropriate sector or zone.[7] Artillery battalions can also have additional ammunition allocated to them. Any

of these methods or combination of methods is used to weight the main effort. During combat, the FSCOORD must ensure that he weights the main effort to build up enough combat power to effectively engage the enemy with massed fires. It may be required to assume risk in one area of the battlefield framework to have the required weight necessary in the main effort. For example, it may be appropriate to assume some risk in the rear area so the main effort can have additional field artillery assets available to provide additional reinforcing fires in the close battle. The FSCOORD must also keep in mind that as the main effort changes in the scheme of maneuver, priority and assignment of fire support assets must also change. This also holds true when artillery units become engaged by the enemy. When artillery units become ineffective, the FSCOORD must ensure that the main effort still has appropriate fire support and is weighted correctly in relation to the supporting effort.

Facilitate future operations by giving on order missions based on the next single most likely event to occur. This fundamental is essential to ensure success in the face of unforeseen events and to ensure smooth transition from one phase of an operation to another.[8] FSCOORDs utilize several methods to accomplish the requirements contained within this fundamental. The assignment of on order missions to FA battalions helps these units anticipate future requirements. Positioning of FA battalions will also help facilitate future operations. This is especially true when the maneuver force is transitioning from the defense to the offense. Positioning artillery units well forward in the operational area will decrease the amount

of time required to provide fire support when the maneuver forces begin offensive operations. The FSCOORD can also alter the allocation of ammunition. Artillery units providing the most fires must have the most ammunition allocated to them. Modification of current tactical missions is also a viable and useful method. An example of this is the FSCOORD modifying the current reinforcing mission of an FA battalion to a reinforcing mission with a percentage or quantity by type of ammunition limit of the controlled supply rate that the unit may not exceed while reinforcing the direct support battalion.

Immediately available fire support with which the force commander can influence the action. The FSCOORD must ensure that the maneuver commander has some artillery assets to influence the battle when required. Assigning tactical missions of general support (GS) and general support reinforcing (GSR) to FA battalions accomplishes this fundamental.[9] When the tactical mission of GSR is given to FA battalions, the FSCOORD must ensure that these FA battalions do not expend too much ammunition providing reinforcing fires.

Maximum feasible centralized control. Centralized control of field artillery permits flexibility in its employment and facilitates effective support to each subordinate element of the command and to the force as a whole.[10] In defensive operations, more centralized control of field artillery assets are desired because it is difficult to know exactly where and when the enemy's main effort will occur. On the other hand, in offensive operations, less centralized control of field artillery assets is desired because our maneuver forces have the initiative. The most centralized control over an FA battalion is

achieved by assigning that battalion a tactical mission of general support. This is followed by the tactical missions of GSR and then reinforcing (R).

The integration of fire support into the maneuver operation is a decisive factor in the success of the battle. The FSCOORD is responsible for advising the maneuver commander on the best use of available fire support resources, for developing the fire support plan, for issuing necessary orders in the name of the maneuver commander, and for implementing the approved fire support plan.[11] The fire support planning principles discussed in FM 6-20 and FM 6-20-30 assist the FSCOORD in effectively integrating fire support into the maneuver commander's battle plan. During the planning process, fire support personnel should keep the following principles in mind.[12] FSCOORDs will not fulfill all four of the basic tasks of fire support if they do not properly utilize these thirteen planning principles. These currently accepted doctrinal planning principles are discussed in detail below.

Plan early and continuously. The fire support plan must be developed early in the planning process. This is essential to providing effective fire support. To effectively integrate fire support with the scheme of maneuver, planning must begin when the commander states his mission, gives his intent and provides his command guidance.[13] Not only must the plan be developed early, it must be continually revised as new information is obtained. These revisions must be made available to all subordinate units. This is especially true during the battle when the actual situation becomes better understood. The FSCOORD must also understand that it is his responsibility to obtain necessary information

from the maneuver commander if more information is required to develop an adequate fire support plan. Prior to the BCTP rotation, it is essential for the FSCOORD to have a well-developed fire support plan that enhances the maneuver commander's battle plan. This plan must be published and distributed well in advance of the rotation to ensure that it is understood by personnel from all of the fire support assets.

Follow the commander's targeting guidance. The FSCOORD must ensure that the commander's guidance is followed throughout the targeting process. When the fire support plan includes a target list, it reflects only those targets that the force commander believes are critical to his operation.[14] There are usually more targets on the battlefield than there are fire support assets available to engage these targets; therefore, the FSCOORD must ensure that the high payoff targets are being targeted and engaged. It is also important to engage these high payoff targets according to the attack guidance matrix to ensure enough combat power is available to achieve the desired effects. If the commander wants to destroy a certain type of target, then enough ammunition must be fired to achieve these effects. Also, if the commander only wants to suppress a target, then only the amount of ammunition required to suppress the target should be fired. There is never enough time or ammunition to try and destroy every potential target on the battlefield. FSCOORDs must attack the targets that the commander wants attacked in the manner required to achieve the commander's desired effects on the target.

Exploit all available targeting assets. Every asset of the fire support system must be utilized to its maximum potential. This is

especially true for targeting assets. The FSCOORD must correctly position these critical assets to employ them to their maximum capabilities during combat operations. Protection of these assets are an important concern; however, if radars are positioned too far back from the FLOT, they will not be able to acquire the targets that must be engaged. The FSCOORD can position the radars close enough to the FLOT to take advantage of their maximum capabilities and provide them with additional assets to assist in their protection. In addition to radars, division FSCOORDs must ensure that targeting information is being obtained from unmanned aerial vehicles (UAVs) and other targeting means. This information will assist in verifying the positioning of enemy artillery units and also in refining target information. Refinement of target data is especially crucial when preparing to execute suppression of enemy air defense assets. Updated targeting information must also be obtained from higher headquarters and incorporated during the targeting process. The FSCOORD must ensure that target information from all available resources is rapidly evaluated and routed to the appropriate attack means.[15] Target data for potential targets that are acquired but cannot be engaged should be passed on to higher headquarters for possible engagement with fire support assets available to them.

Consider the use of all available fire support means, both lethal and nonlethal. Once again, every aspect of the fire support system must be utilized to its maximum potential. FSCOORDs must consider both lethal and nonlethal attack means available at his level and higher levels.[16] All of these assets must be considered when deciding how certain targets will be engaged. It is important to

consider engaging targets with multiple systems to increase the effects on the target. In addition, doctrine specifies that FSCOORDs must use nonlethal assets, such as electronic warfare and smoke in their fire support plan.

Use the lowest echelon capable of providing effective fire support. FSCOORDs must examine all available delivery means when deciding how to engage a target. The lowest echelon capable of providing the fire support must be utilized.[17] Lower echelons require fewer channels of communications which results in quicker response times. When maneuver forces in contact need smoke, the organic mortars are usually the best and quickest responding asset on the battlefield to provide this fire support.

Use the most effective means. Doctrine also specifies that field artillery units engage targets in the most effective manner. The FSCOORD must consider the nature and importance of the target, its dwell time, the availability of attack means and the results desired.[18] Close air support sorties that are 15 minutes away should not be used to attack a target requiring immediate suppression. The FSCOORD must also select the optimum shell and fuze combination when deciding to engage a target.

Furnish the type of support appropriate. The FSCOORD must utilize fire support assets wisely. If a command and control node has to be neutralized for a short period of time and this can be accomplished with electronic warfare (EW) assets, then the EW assets should be used, not Multiple Launch Rocket System (MLRS) rockets. On the other hand, if the command and control node must be destroyed, then

MLRS rockets should be used rather then EW assets. The FSCOORD is in the best position to weigh requests for fire support with the force commander's guidance for engaging priority targets and the current and future needs for fire support.[19]

Avoid unnecessary duplication. There are not enough fire support assets available on the battlefield; therefore, it is a requirement for the FSCOORD to ensure assets are not utilized for the same purpose unnecessarily. An important task for every FSCOORD is to ensure that unnecessary duplications of fire support are resolved and that only the minimum fire power needed to achieve the desired effects is used.[20] This must not be confused with ensuring adequate redundancy throughout the battlefield. FSCOORDs may wisely position two radars with overlapping coverage on the most likely avenue of approach. This is not unnecessary duplication. On the other hand, the division artillery firing a counterbattery fire mission and then inadvertently passing this target to the reinforcing FA brigade which fires on this target before battle damage assessment is conducted, may well be unnecessary duplication.

Consider airspace coordination. Airspace coordination is a critical requirement for the FSCOORD because of the diverse assets available to the division artillery. Fratricide and effective target engagements must continually be assessed. The FSCOORD must coordinate airspace so that he can orchestrate fires on the target using multiple fire support assets in the safest manner possible for our soldiers. Therefore, the FSCOORD must provide information concerning fire support

use of airspace to all agencies and personnel engaged in airspace management.[21]

Provide adequate fire support. The FSCOORD is responsible for providing effective fires in support of the force commander's battle plan. The FSCOORD must inform the maneuver commander if the available fire support assets cannot provide sufficient fires in accordance with the maneuver commander's guidance and intent.[22] Additional assets must be obtained or the maneuver commander must alter his guidance. On the other hand, the FSCOORD must efficiently and effectively orchestrate the fire support system to ensure that all fire support assets are being utilized to their fullest potential. This includes changing the organization for combat as the scheme of maneuver changes.

Provide rapid and effective coordination. The FSCOORD must closely monitor the flow of the battle and quickly adjust the fire support plan in accordance with the changing situation. FSCOORDs must know the characteristics of the various fire support systems and have current information on their position and availability.[23] During BCTP rotations, this is especially true concerning the FLOT. If the FSCOORD does not monitor the FLOT, he risks losing critical assets, such as MLRS launchers and radars, to direct enemy contact. The FSCOORD must also closely monitor the ammunition available to his subordinate units and quickly provide instructions to units before they become critically short of ammunition.

Remain flexible. The FSCOORD must remain flexible in the face of changing situations. The FSCOORD must anticipate and provide instructions for future contingencies.[24] He must anticipate these

changes and act quickly when the changes occur. It is important to anticipate different situations, especially during combat operations. Very seldom will an initial plan be executed as originally thought from beginning to end. Branches and sequels to the original plan must be thought out, and personnel must be ready to react to them.

Provide for the safeguarding and survivability of friendly forces and/or installations. Doctrine also requires that the FSCOORD safeguard fire support assets and that these assets remain as survivable as possible. This means the FSCOORD must suppress all known enemy air defense weapon systems immediately before and during the flight of friendly aircraft across the FLOT. Moreover, the FSCOORD must continually monitor the positioning of fire support assets to ensure they do not become directly engaged with the enemy. However, FSCOORDs must ensure that fire support assets are not positioned so far from the FLOT that this unduly degrades the effectiveness of fire support.[25] Survivability of fire support assets includes building defensive positions and assigning additional personnel to help protect radar sections.

Several important doctrinal concepts were just discussed. The four basic tasks of fire support are important because these tasks help to evaluate the effectiveness of fire support provided to maneuver forces. If these four basic tasks of fire support are not fulfilled, then the force commander will not be able to maneuver his units in the manner he wants which will likely cause failure on the battlefield. The five fundamentals for organizing field artillery for combat and the fire support planning principles are also important concepts because they are

used by FSCOORDs to provide effective fire support. If these two concepts are not followed, then the four basic tasks of fire support will not be fulfilled which contributes to unsuccessful BCTP exercises.

Many articles can be found highlighting the lessons field artillerymen learned during Desert Storm. These articles provide insight for the analysis portion of this thesis in determining why units conducted operations in a particular manner at BCTP. These articles were reviewed to determine if there were lessons learned by units participating in Desert Storm which caused them to conduct operations in BCTP exercises in a nondoctrinal manner. To facilitate the review of these lessons learned, the lessons learned are discussed in two separate sections: equipment and operations.

Although several equipment and operational issues learned in Desert Storm are important to the Field Artillery community, these lessons that were learned did not impact the manner that units conducted operations in BCTP exercises from 1992 through 1994. The literature review of articles discussing lessons learned from Desert Storm did not include deficiencies found in doctrine. The doctrine was sufficient for units to achieve their assigned missions in an outstanding manner. Units participating in Desert Storm conducted many rehearsals which reinforced concepts and techniques outlined in doctrine which was greatly responsible for the overwhelming success units had in this operation. This highlights the importance of training because units do fight as they train. Some of the important equipment and operational issues are discussed below to identify the types of lessons that were learned from Desert Storm.

The 1st Armored DIVARTY anticipated the requirement for very mobile operations during Desert Storm. Therefore, they very wisely acquired three M577s from an inactivating unit in Germany before they deployed from Europe to replace the cumbersome Table of Organizational Equipment (TOE) dictated vehicle for the TOC, which was the 5 ton expandable van.[26] The DIVARTY TOC's mobility was greatly enhanced utilizing these M577s in this situation in lieu of the expandable van. This DIVARTY identified another problem concerning mobility.[27] The fire support team vehicle (FIST-V) was inadequate because it could not keep up with the M1 Abrams tank and M2/3 Bradley fighting vehicle.[28] The 1st Cavalry DIVARTY identified similar problems, and more. They confirmed that the FIST-V is not mobile enough to travel with M1 tanks and Bradley fighting vehicles and that the Q37 radar needs increased mobility and deployability.[29] They learned that the M548 ammunition carrier was not able to provide artillery ammunition resupply during fast-paced, mobile operations.[30] The 1st Cavalry learned they had to plan their movement time tables according to the strengths and weaknesses of their organic equipment.[31]

The absence of a tactical fire direction (TACFIRE) system capability in the 101st Airborne DIVARTY created a challenge for their command and control network as they attempted to synchronize fire support.[32] However, they utilized the OH-58Ds, the division's primary target acquisition asset north of the covering force area, to down-link target information into the brigade's TACFIRE systems which became a most responsive method for placing timely and accurate fires on the enemy.[33]

The 1st Armored DIVARTY also encountered problems with the TACFIRE system. The 1st Armored DIVARTY discovered that it was much easier and more reliable to execute plans and missions using voice radio communications instead of digital TACFIRE communications because of communications problems during mobile operations.[34]

From an operational standpoint, the 101st Airborne DIVARTY learned, or rather, relearned, that the positioning of fire support assets is critical to being able to provide adequate fire support. Positioning FA assets was critical to provide continuous fires for the depth of the covering force area.[35] Two 155 millimeter battalions were positioned well forward in the covering force area to provide priority fires and quickfire channels.[36] Two MLRS batteries were also positioned far enough forward in the area of operations to provide some additional fire support to the aviation brigade operating well forward in the area of operations.[37]

The 1st Armored DIVARTY learned that creating an artillery liaison section in the Technical Control and Analysis Element (TCAE) of the military intelligence battalion significantly improved the ability of the military intelligence system to provide timely targeting data.[38]

The 1st Armored DIVARTY was fortunate enough in Desert Storm to have an entire MLRS battalion assigned instead of the standard MLRS battery.[39] This eliminated the command and control problems inherent in having the standard configuration of one MLRS battery assigned to a DIVARTY.[40] This also enabled the DIVARTY to rotate fire missions among the launchers to give MLRS firing units the ability to rest and conduct maintenance without any break in MLRS fire support to the division.[41]

The 1st Cavalry DIVARTY confirmed that the results of firing several battalions of 155 millimeter munitions (up to ten volleys per battalion) and MLRS rockets into the same target area created devastating results.[42] The 24th Infantry DIVARTY also articulated that fire support should not be diluted with fires on small and relatively insignificant targets; but rather, high-payoff targets should be engaged with massed fires.[43]

The 1st Cavalry DIVARTY also confirmed that the decide, detect, deliver (as it was known then) was a key ingredient to bringing fires to bear at points critical to the scheme of maneuver.[44]

The equipment and operational lessons learned that were just discussed are important to the field artillery community; however, the most important lesson learned was highlighted in an article from the 24th Infantry DIVARTY. This lesson learned reiterated the fact that with well-trained soldiers, good equipment and doctrine as a guide, leaders can select the appropriate course of action for each combat situation.[45] This article highlights the importance of conducting effective training and utilizing the concepts and techniques outlined in doctrine.

There were several lessons learned related to fire support during Desert Storm; however, these lessons learned did not affect the manner in which DIVARTYs conducted operations in exercises at BCTP. When units conducted exercises at BCTP, they attempted to conduct operations according to doctrine. Units are not given the flexibility to deviate from doctrine during exercises at the BCTP. Divisional sized units do not have the ability to conduct enough divisional sized

exercises while at home station; therefore, units have to take advantage of the training opportunity that BCTP provides to train all members of the division. Divisions cannot use this valuable training mechanism to try out new operations. Interviews with personnel from BCTP confirmed this. These interviews revealed that when units deviated from doctrinal concepts, it was because personnel were unfamiliar with doctrinal concepts, not that they were performing operations in a manner learned from experiences in Desert Storm. The Field Artillery School periodically sends personnel to observe BCTP exercises; however, these personnel do not influence the manner in which units conduct operations. Interviews with BCTP personnel validated this. BCTP personnel made it very clear that personnel present from the Field Artillery School did not influence the manner that units conducted their operations. These interviews also indicated that many units that were initially conducting operations in a nondoctrinal manner learned from their mistakes and quickly changed the way they operated to be consistent with established doctrine. This supports the thesis' conclusion that the doctrine is right on target and that fire support personnel from some units do not fully understand the doctrine. Reviewing common errors made by other units conducting exercises at BCTP prior to a unit conducting its BCTP exercise will help unit personnel review important doctrinal concepts and help keep these personnel from making similar mistakes.

ENDNOTES

[1]US Army, FM 6-20, Fire Support in the Airland Battle (Washington: Department of the Army, 1988), 1-3.

[2]Ibid.

[3]Ibid., 3-3.

[4]Ibid.

[5]Ibid., 3-4.

[6]Ibid., 2-10.

[7]Ibid.

[8]Ibid.

[9]Ibid.

[10]Ibid.

[11]Ibid., 3-1.

[12]US Army, FM 6-20-30, Tactics, Techniques, and Procedures for Fire Support for Corps and Division Operations (Washington: Department of the Army, 1989), 2-1.

[13]US Army, FM 6-20, Fire Support in the Airland Battle (Washington: Department of the Army, 1988), 3-5.

[14]US Army, FM 6-20-30, Tactics, Techniques, and Procedures for Fire Support for Corps and Division Operations (Washington: Department of the Army, 1989), 2-13.

[15]US Army, FM 6-20, Fire Support in the Airland Battle (Washington: Department of the Army, 1988), 3-5.

[16]Ibid.

[17]Ibid.

[18]Ibid.

[19]Ibid.

[20]Ibid.

[21]Ibid.

[22]Ibid.

[23]Ibid.

[24]Ibid., 3-6.

[25]Ibid., 3-6.

[26]Captain Richard A. Lacquement, Captain Joseph V. Pacileo, and Captain Paul A. F. Gallo, "Targeting During Desert Storm," Field Artillery (February 1992): 38.

[27]Ibid.

[28]Colonel Vollney B. Corn and Captain Richard A Lacquement, "Silver Bullets," Field Artillery (October 1991): 10.

[29]Brigadier General Tommy R. Franks, "1st CAV in Desert Storm: Deception, Firepower, and Movement," Field Artillery (June 1991): 32.

[30]Ibid.

[31]Ibid.

[32]Colonel Randall J. Anderson and Major Charles B. Allen, "Lightning of Desert Storm," Field Artillery (October 1991): 63.

[33]Ibid.

[34]Captain Richard A. Lacquement, Captain Joseph V. Pacileo, and Captain Paul A. F. Gallo, "Targeting During Desert Storm," Field Artillery (February 1992): 38.

[35]Colonel Randall J. Anderson and Major Charles B. Allen, "Lightning of Desert Storm," Field Artillery (October 1991): 61.

[36]Ibid.

[37]Ibid., 62.

[38]Captain Richard A. Lacquement, Captain Joseph V. Pacileo, and Captain Paul A. F. Gallo, "Targeting During Desert Storm," Field Artillery (February 1992): 38.

[39]Colonel Vollney B. Corn and Captain Richard A Lacquement, "Silver Bullets," Field Artillery (October 1991): 10.

[40]Ibid., 11.

[41]Ibid.

[42]Brigadier General Tommy R. Franks, "1st CAV in Desert Storm: Deception, Firepower, and Movement," Field Artillery (June 1991): 33.

[43]Colonel David A Rolston, "Victory Artillery in Operation Desert Shield," Field Artillery (April 1991): 24.

[44]Brigadier General Tommy R. Franks, "1st CAV in Desert Storm: Deception, Firepower, and Movement," Field Artillery (June 1991): 34.

[45]Major John M. House, "Lessons from the BattleKings in the Desert," Field Artillery (October 1991): 21.

CHAPTER 3

RESEARCH METHODOLOGY

The research methodology consists of an analysis of AARs of fourteen BCTP rotations that occurred between 1992 and 1994. These rotations were selected because the AARs from these rotations were written in a similar manner which makes analysis and comparison much easier. The documentation from rotations prior to 1992 is sketchy at best and several of the BCTP rotations conducted during 1995 were not initially available at the beginning of the research process; however, the fourteen rotations selected provided sufficient data to conduct a solid analysis of the shortcomings of units undergoing training at BCTP. Also, the fourteen rotations selected were inclusive of all unclassified rotations occurring during 1992 through 1994.

Division and corps level units conduct BCTP rotations every two years. These exercises consist of computer simulations that evaluate a unit's ability to accomplish assigned missions. There are several BCTP observers that closely watch the actions of personnel from all of the BOSs and monitor the results of each battle. An extensive AAR is given to every unit shortly after the completion of the BCTP rotation.

If the force commander does not succeed in accomplishing his mission, then the exercise is classified as unsuccessful. If the force commander accomplishes his mission, then the exercise is classified as successful. Therefore, this thesis is based on the following

assumptions: a unit can have a successful BCTP rotation if they follow doctrine and accomplish the mission. Alternatively, a unit can also have a successful rotation if they do not follow doctrine but still accomplish the mission. A unit can have an unsuccessful rotation by not following doctrine and not accomplishing the mission. A unit can also have an unsuccessful rotation by following doctrine but not accomplishing the mission. These assumptions are illustrated in figure one. BCTP AARs describe the actions that contribute to successful and unsuccessful exercises. There is a strong correlation between units providing effective fire support and experiencing a successful rotation. In all of the BCTP AARs, units receiving inadequate fire support had unsuccessful exercises. Conversely, those units that did receive adequate fire support had successful exercises.

The use of the basic tasks of fire support as criteria for analysis of the fire support provided in these BCTP rotations is appropriate because that is one of the purposes of these basic tasks according to current field artillery doctrine.[1] These four basic tasks include: support forces in contact, support the force commander's battle plan, synchronize fire support, and sustain fire support. Doctrine states that the final assessment of the ground support mission must be made in terms of these four basic tasks of fire support.[2] This part of the analysis will validate the usefulness of using the basic tasks of fire support to help in determining why fire support is adequate or inadequate. If the basic tasks can be utilized to appropriately determine the adequacy of fire support, then the doctrine is validated. If the basic tasks of fire support cannot explain why the fire support

provided in successful exercises was adequate and why the fire support provided in unsuccessful exercises was inadequate then this portion of current doctrine must be revised.

This second part of the analysis will use the five fundamentals for organizing field artillery for combat and the fire support principles discussed in the previous chapter to determine why the basic tasks for fire support were not accomplished in the unsuccessful rotations. This study uses the organization for combat and the fire support principles to effectivelyanalyze these unsuccessful rotations because the foundation of conducting successful operations consists of proper organization and appropriate planning. This is true for any task that someone must accomplish. Field artillery is organized for combat to provide responsive and effective FA fires and to coordinate all fire support.[3] The purpose of the fire support principles is to optimize the employment of the fire support system by integrating and synchronizing it with the battle plan.[4] Analysis of unsuccessful rotations will result in a compilation of tasks that are not being performed properly. This comprehensive list could be used throughout the field artillery community to ensure that these tasks receive more attention in the future. The identification and additional training of these tasks will hopefully prevent similar problems in future BCTP rotations. More importantly, this analysis will help to determine the validity of field artillery doctrine. The basic assumption is that if units are following doctrine and are unsuccessful then doctrine must be revised.

In this section of the analysis, the thesis will examine the successful rotations utilizing the deficient areas found in the analysis

of the unsuccessful rotations. This is very important to the results of the thesis because this will help in determining if units are successful if they properly perform tasks in these deficient areas. Current field artillery doctrine is valid if units that properly execute the doctrine are successful. Another important section of this analysis is determining if successful or unsuccessful units were performing tasks in a manner inconconsistent with doctrine during the successful rotations. If there are instances where this occurred, then the current field artillery doctrine should be revised to include these procedures to ensure other units are aware of them and utilize them in their training and in future BCTP rotations.

The final and most difficult part of the analysis portion is the analysis of the lessons learned and operations in Desert Storm to determine if this experience had any influence on the manner in which units conducted operations in their BCTP rotation. Interviews with personnel from BCTP will also assist in determining why units operated the way they did. It is possible that units are attempting to validate recommended changes to current doctrine that they have submitted to the Field Artillery School. It is also possible that units are trying to validate the usefulness of pending changes to the doctrine developed at the Field Artillery School. This information will be helpful to the field artillery community. This analysis may identify operations that may be successful in one scenario, like Desert Storm, but unsuccessful in another. Therefore, units learning lessons in Desert Storm must evaluate the applicability of these lessons to the current situation. Identifying these lessons learned and their applicability to BCTP

rotations in this thesis will prevent units from participating in a BCTP rotation and learning the hard way that certain operations do not work well.

The analysis of the successful and unsuccessful BCTP rotations will generate an extensive amount of useful information, such as the identification of tasks that units perform improperly causing an unsuccessful exercise. Army doctrine contains many principles and techniques for fire support personnel to use. This doctrine does not contain mere checklists that must be followed. The principles and techniques described in doctrine are tools that are applied according to the current situation. Providing adequate fire support is a "science" and an "art". The principles and techniques are the "science" portion and the application of these principles and techniques is the "art" portion. The heart of this analysis is to assess the validity of the "science" portion of current FA doctrine and determine if this doctrine is adequate for FSCOORDs to utilize during the "art" aspect of providing adequate fire support to force commanders in BCTP exercises.

Endnotes

[1]US Army, FM 6-20, Fire Support in the Airland Battle (Washington: Department of the Army, 1988), v.

[2]Ibid., 1-3.

[3]Ibid., 2-10.

[4]Ibid., 3-4.

CHAPTER 4

ANALYSIS

As previously mentioned, a three part analysis was used to determine the answer to the primary research question, should the current field artillery doctrine for division artillery units should be revised?

Fourteen BCTP rotations from 1992 through 1994 were examined and classified as successful or unsuccessful in the first part of the analysis. This is critical in examining the validity of using current doctrine to determine the effectiveness of fire support. If rotations can be classified as successful or unsuccessful using the current doctrine, then this validates that portion of current doctrine.

The second part of the analysis will identify the operations that units did not perform which caused their unit to have an unsuccessful BCTP rotation. There are two critical components in this part of the analysis. First, examining the successful rotations to see if performing those operations correctly led to a successful rotation. This will help validate the principles and techniques that are contained in our current doctrine. Secondly, identification of operations that led to a successful rotation but were not contained in US doctrine. If this is found to be the case, then US doctrine must must be revised to include these operations.

The final part of the analysis will determine the reasons unsuccessful units conducted operations. Getting to the root of this problem with US doctrine, level of training, etc., will provide the information needed for preventing units from having unsuccessful rotations in the future.

Part One Of The Analysis

Eight BCTP rotations were determined to be unsuccessful because the force commander did not accomplish his mission. Also, the FSCOORD in each of these exercises provided inadequate fire support to the force commander which contributed to the unsuccessful results in these exercises. Each of these rotations were analyzed using the basic tasks of fire support to determine which of the basic tasks were not fulfilled. The basic tasks of fire support were key to determining why the fire support provided to force commanders was not adequate. This study found that if the basic tasks were not fulfilled, then the fire support provided was inadequate and this inadequate fire support contributed to the unit having an unsuccessful rotation. This study also determined that if the basic tasks were fulfilled, then the fire support provided was adequate and this adequate fire support contributed to the unit having a successful rotation. In this sense, the basic tasks of fire support outlined in FM 6-20 and FM 6-20-30 are valid and should be used to evaluate the adequacy of fire support that is provided to force commanders.

The FSCOORDs in the following eight unsuccessful rotations made some of the same mistakes which supports the recommendation to have

greater visibility of lessons learned at BCTP throughout the field artillery community. A matrix is included as figure 2 that depicts deficient tasks, fundamentals, and principles for each unsuccessful BCTP rotation discussed below.

BCTP Rotation 9304. This rotation was classified as unsuccessful because the DIVARTY did not always accomplish three of the four basic tasks of fire support throughout the rotation.

Support forces in contact. Fires did not consistently suppress known air defense weapons immediately before and during flights by friendly aircraft.[1] Suppression of enemy air defense (SEAD) was not a coordinated effort; it was not fired at the right place and time.[2] The aviation brigade did not attend targeting meetings at the division, and consequently, did not have up-to-date targeting data to plan routes and SEAD targets.[3]

Support the force commander's battle plan. The unit did not support the commander's plan with all available lethal and nonlethal fires. SEAD fires did not include nonlethal fires.[4] Also, the capabilities of joint suppression of enemy air defense (J-SEAD) assets were not always considered in deep attacks.[5]

Synchronize fire support. The "decide" aspect of targeting did not always support the accomplishment of the unit's mission, the commander's concept of the operation, and his intent and initial planning guidance about target priorities.[6] Targeting cell/deep operations meetings did not use situation templates to determine time lines for future and deep operations. The BAI target nomination process

was not fully integrated into the meetings and the focus of the meetings remained on the close fight.[7]

BCTP Rotation 9307. This rotation was classified as unsuccessful because the DIVARTY did not always accomplish all four of the basic tasks of fire support throughout the rotation.

Support forces in contact. SEAD fires in support of deep operations were generally ineffective because coordination and execution were always a problem.[8] A lack of coordination between the DIVARTY, subordinate artillery battalions and the air force personnel caused artillery units to be unprepared to fire SEAD on time, delaying the execution of the cross-flot missions.[9] Subordinate artillery battalions were continually out of position to fire assigned SEAD missions. Also, when some SEAD missions were fired, the air force sorties were not immediately prepared to conduct the air interdiction missions. This caused artillery battalions to refire the SEAD missions and in some cases, the air interdiction missions were aborted.

Support the force commander's battle plan. Sufficient fire support assets were not available to engage HPTs throughout the depth of the battlefield because radars and MLRS were positioned extremely conservatively.[10] MLRS and cannon fire were seldom a factor in deep operations because their positioning limited fires to no more than 10km beyond the FLOT.[11] The division commander stated in his concept for fires that his intent was to attrit enemy artillery down to 60% during the covering force operations to set the conditions for a successful defense; however, the enemy artillery was still in excess of 80% when the main battle area fight began.[12] The enemy artillery was not reduced

to 60% during the covering force battle because the artillery units responsible for firing missions in support of the deep battle could not range the enemy artillery units. An attempt was made to preserve friendly artillery units for future battles by positioning them further away from the FLOT than called for in doctrine; however, this approach caused the DIVARTY's deep battle to be ineffective during the covering force battle. If the DIVARTY positioned its radar assets and artillery units close enough to the FLOT to ensure at least two-thirds of the systems capabilities could be utilized, then the DIVARTY's deep operations would have been more effective.

Synchronize fire support. Efforts were not made to acquire and attack the enemy with multiple assets at critical times in the battle.[13] Efforts were not made to either confirm targets by combining radar detections, UAV Tracks, and TCAE reports or plan any integrated attacks to mass effects on the enemy.[14] Targeting cell meetings generally lacked productivity because key players (Chief of Staff, G2, G3, and FSCOORD) rarely attended and IPB products were not presented with any visual representation of how the battlefield would look more than 12 hours out which resulted in no products being generated from these meetings.[15]

Sustain fire support. The DIVARTY did not establish a logistic system that was responsive to the needs of the fire support assets which resulted in three of four MLRS batteries exhausting all their ammunition, a 155 millimeter battalion only being able to man 5 of the 19 Howitzers that were on hand, and one battery receiving six Howitzers when the unit did not have any ammunition available.[16]

BCTP Rotation 9308. This rotation was classified as unsuccessful because the DIVARTY did not always accomplish three of the four basic tasks of fire support throughout the rotation.

Support forces in contact. Direct support and reinforcing artillery were not in position to support the commander's plan during a key river crossing operation because the movement plan was inadequate.[17]

Support the force commander's battle plan. Although uncommitted forces of the second tactical echelon were HPTs, little emphasis was placed on attacking them which allowed these enemy forces to be committed in the close fight.[18]

Synchronize fire support. Attempts to use attack helicopters deep were infrequent and generally unsuccessful because the SEAD program was not adequate.[19] SEAD programs arrived at the guns too late to be executed as planned and intelligence from UAV flights was not used to update SEAD plans.[20]

BCTP Rotation 9310. This rotation was classified as unsuccessful because the DIVARTY did not always accomplish all four of the basic tasks of fire support throughout the rotation.

Support forces in contact. The DIVARTY was largely unsuccessful in the execution of deep fires because of ineffective targeting and the inability to coordinate effective SEAD.[21] Targeting was ineffective because the decide-detect-deliver-assess methodology was largely misunderstood by DIVARTY personnel.[22]

Support the force commander's battle plan. The FSCOORD was unable to provide adequate support to the force commander's plan. A rapidly changing situation, unanticipated casualties, inflexibility, and

failure to adequately weight the main effort caused confusion during the execution of the defense.[23]

Synchronize fire support. EW assets were not utilized to take advantage of their full potential. EW assets were only used to SEAD during cross-FLOT operations.[24]

Sustain fire support. DIVARTY did not utilize proper positioning to ensure fire support assets received adequate protection. Two field artillery battalions were stranded north of a river and subsequently annihilated when the bridge across the river was blown prematurely.[25]

BCTP Rotation 9311. This rotation was classified as unsuccessful because the DIVARTY did not always accomplish three of the four basic tasks of fire support throughout the rotation.

Support forces in contact. Fires did not suppress known enemy air defese weapons immediately before and during flight by friendly aircraft within the area of operations due to SEAD not being a priority mission for the FA brigade, the inability of available assets to range the targets, and targets were not always updated in a timely manner.[26]

Support the force commander's battle plan. The artillery organization for combat did not facilitate future operations, provide the division commander with immediately available FA support or weight the main effort during the defense because of numerous changes and additions of nonstandard tactical missions.[27]

Sustain fire support. DIVARTY did not utilize proper positioning to ensure fire support assets received adequate protection. Several cannon and MLRS units were destroyed due to direct enemy contact

because information concerning enemy penetrations and bypassed units was not monitored and utilized to position artillery away from the enemy.[28]

BCTP Rotation 9312. This rotation was classified as unsuccessful because the DIVARTY did not always accomplish three of the four basic tasks of fire support throughout the rotation.

Support forces in contact. The volume of fire was generally insufficient to provide adequate support to forces in contact because the FSCOORD did not mass fires.[29] Volume of fires being applied against counterfire targets was insufficient to achieve the desired results.[30] DIVARTY was generally unsuccessful in the planning and execution of deep fires because of ineffective targeting, lack of a good deep operations SOP and inability to coordinate SEAD.[31] The FSCOORD did not adequately support the main effort because throughout the exercise committed units received an equal slice of artillery and the priority of fires was not always with the main effort.[32] This prevented the massing of fires to support the main effort.

Support the force commander's battle plan. The force commander's battle plan was not supported because the attack guidance matrix did not require delivery units to achieve the effects desired by the commander. This was due largely to a general unfamiliarity with the definitions of doctrinal terms being used to describe desired effects.[33]

Synchronize fire support. Targeting was generally ineffective because too much time was spent on "decide" and insufficient effort went into planning, coordinating, and synchronizing "detect" and "deliver".[34] Ineffective targeting resulted in air interdiction being much less effective for the division than it could have been because the deep cell

was not looking far enough out in time during their planning.[35] Target cell meetings were generally wasted effort because no products resulted.[36]

BCTP Rotation 9401. This rotation was classified as unsuccessful because the DIVARTY did not always accomplish three of the four basic tasks of fire support throughout the rotation.

Support Forces In Contact. Deep fires planned by the division were largely ineffective due to poor targeting.[37] Integration of intelligence in the targeting process was almost nonexistent.[38]

Support the force commander's battle plan. The force commander's battle plan was not supported because artillery battalions were not firing as many rounds as required by the attack guidance matrix in an attempt to increase survivability.[39]

Synchronize fire support. The FSCOORD was unable to synchronize the intelligence gathering capabilities into the fire support plan. The FSCOORD received updated information on enemy air defense systems and artillery assets; however, the FSCOORD did not have a mechanism in place to utilize this updated target information to refine target data. This resulted in the inability to provide fires in mass on the enemy because several missions were fired on old target locations when, in fact, the DIVARTY had the current target locations from recent UAV overflights.

BCTP Rotation 9411. This rotation was classified as unsuccessful because the DIVARTY did not always accomplish three of the four basic tasks of fire support throughout the rotation.

Support forces in contact. Counterfire conducted using artillery, tactical air, EW, and attack helicopters did not successfully destroy, neutralize or suppress enemy indirect fire systems because the separate FA brigade conducting the counterfire mission did not receive target information directly from the Q37 radars.[40] Fires did not always suppress known enemy air defense weapons immediately before and during flight by friendly aircraft within the area of operations (AO) because of competing requirements, the inability to range the targets, and artillery out of position at critical times preventing timely fires.[41]

Support the force commander's battle plan. The DIVARTY did not adequately weight the main effort during the covering force operation because the divisional cavalry squadron was forward with no immediately available fire support in DS, except a priority of calls for fire to the division's GS 8 inch battalion.[42] This support proved to be ineffective.

Synchronize fire support. DIVARTY did not effectively utilize the radars because no cueing schedule was established, targets that were acquired were not engaged, and radar detections were not used to verify enemy artillery groupings.

The following six BCTP rotations were determined to be successful using the basic tasks of fire support as evaluation criteria.

BCTP Rotation 9203. This rotation was classified as successful because the DIVARTY did not violate any of the basic tasks of fire support throughout the rotation.

Support forces in contact. Fire support coordination facilities were established and maintained to support current and future operations for close, deep, and rear.[43]

Support the force commander's battle plan. The positioning of target acquisition assets and control of fires were executed on all avenues of approach effectively using critical friendly zones (CFZs) and call for fire zones (CFFZs).[44] Acquisition and attack of HPTs were planned throughout the depth of the battlefield and HPTs were quickly passed to the FSE for execution when they were acquired.[45]

Synchronize fire support. Management of CAS assets worked well using the "push" system.[46] The division demonstrated its ability to mass fires during the exercise.[47]

Sustain fire support. The various components of the fire support system were protected from attack.[48]

BCTP Rotation 9302. This rotation was classified as successful because the DIVARTY did not violate any of the basic tasks of fire support throughout the rotation.

Support forces in contact. The artillery was in position and provided accurate and timely fires.[49]

Support the force commander's battle plan. Counterfire conducted using artillery, tactical air, EW, and attack helicopters successfully destroyed, neutralized, or suppressed enemy indirect fire systems.[50]

Synchronize fire support. Lethal and nonlethal fires consistently suppressed enemy air defenses.[51]

Sustain fire support. Plans ensured the protection of various components of the fire support system.[52]

BCTP Rotation 9309. This rotation was classified as successful because the DIVARTY did not violate any of the basic tasks of fire support throughout the rotation.

Support forces in contact. The positioning of field artillery assets always provided adequate support.[53]

Support the force commander's battle plan. The "decide" aspect of targeting supported accomplishment of the unit's mission, the commander's concept of the operation, and his intent and initial planning guidance about target priorities.[54]

Synchronize fire support. Counterfire conducted using artillery, tactical air, EW, and attack helicopters successfully destroyed, neutralized or suppressed enemy indirect fire systems.[55]

Sustain fire support. The DIVARTY provided adequate resources for digging in cannons and MLRS launchers to increase their survivability.[56]

BCTP Rotation 9404. This rotation was classified as successful because the DIVARTY did not violate any of the basic tasks of fire support throughout the rotation.

Support forces in contact. Forces in contact received responsive fire support.[57]

Support the force commander's battle plan. Planning and execution of fire support was synchronized with the commander's intent.[58]

Synchronize fire support. FSE and TOC procedures were adequate to synchronize the fire support system.[59]

Sustain fire support. The division demonstrated the requisite skills to sustain the fire support system.[60]

BCTP Rotation 9406. This rotation was classified as successful because the DIVARTY did not violate any of the basic tasks of fire support throughout the rotation.

Support forces in contact. Forces in contact received responsive fire support.[61]

Support the force commander's battle plan. Planning and execution of fire support was synchronized with the commander's battle plan.[62]

Synchronize fire support. FSE and TOC procedures were adequate to synchronize the fire support system.[63]

Sustain fire support. The division demonstrated the requisite skills to sustain the fire support system.[64]

BCTP Rotation 9407. This rotation was classified as successful because the DIVARTY did not violate any of the basic tasks of fire support throughout the rotation.

Support forces in contact. Fire support was provided to support forces in contact in all phases of the exercises.[65]

Support the force commander's battle plan. The "decide" aspect of targeting supported accomplishment of the unit's mission, the commander's concept of the operation and his intent and initial planning guidance about target priorities.[66]

Synchronize fire support. Targeting/deep operations meetings significantly contributed to deep and future operations.[67]

Sustain fire support. Plans ensured the protection of various components of the fire support system.[68]

Part Two Of The Analysis

The eight BCTP rotations that were determined to be unsuccessful were analyzed according to the five fundamentals of organization for combat and the fire support planning principles. The results revealed that all principles were not performed correctly in one rotation or another. Just listing all these principles repeatedly under each rotation would not serve a purpose; however, a summary of the most common principles that were performed incorrectly are included in chapter 5.

The six BCTP rotations that were determined to be successful were analyzed according to the five fundamentals of organization for combat and the fire support planning principles and this study found that these principles were being performed correctly; therefore, a repetative listing for each rotation is not required. It is important to note that it was evident the FSCOORDS in these rotations performed the "art" of fire support by applying the principles that ultimately led to the successful rotation.

Part Three Of The Analysis

To determine the reasons unsuccessful units conducted operations in the manner in which they did required detailed analysis in several areas which include lessons learned from Desert Storm,

statements contained in BCTP after action reviews, comments contained in the BCTP perceptions document, and interviews from personnel observing operations occurring in BCTP rotations.

Analyzing lessons learned from Desert Storm could reveal if units learned a nondoctrinal procedure, method, or technique. A thorough analysis of the articles written about Desert Storm lessons learned revealed many interesting ideas. These lessons learned did cover a large range of recommendations in the areas of equipment and training; however, they did not identify new ways of providing fire support at the division artillery level. This is a great tribute to current doctrine; however, it does not help to determine the root cause for some units not being able to provide effective fire support to maneuver commanders during rotations at BCTP.

Analyzing the BCTP AARs and the perceptions document did not reveal any indications of why units did not follow doctrine.

Interviews with personnel from BCTP confirmed my expectations that units did not follow doctrine because they were not well trained on some aspects of the doctrine. They were not well trained because units do not have the ability to train on synchronizing all the fire support assets available at BCTP during training exercises at their home station. This particular lack of training is the root cause for units not performing well at BCTP.

In summary, this analysis demonstrates that of the fourteen units that conducted rotations from 1992 through 1994, six of these units had successful rotations because they were able to provide

adequate fire support to the force commander enabling him to accomplish his mission. Furthermore, these six units fulfilled the four basic tasks of fire support and they followed the five fundamentals for organizing field artillery for combat and the fire support planning principles.

This analysis also demonstrates that eight of the fourteen rotations were unsuccessful because these units did not provide adequate fire support to the force commander which led to mission failure. Furthermore, these eight units did not fulfill one or more of the basic tasks of fire support and they violated several of the fundamentals for organizing field artillery for combat and the fire support planning principles. There were at least two units that violated all four of the basic tasks of fire support, four of the five principles for organizing field artillery for combat and seven of the fire support planning principles. These most common problem areas are discussed below.

Basic Tasks Of Fire Support

Support forces in contact. All eight of the unsuccessful units did not fulfill this task. The most significant problem that the FSCOORDs had was providing SEAD fires to attack aviation and tactical air units. SEAD fires were not well planned and synchronized because targeting/deep operations meetings were ineffective. Poor targeting and field artillery units not within range contributed to the ineffectiveness of these fires.

Support the force commander's battle plan. All eight of the unsuccessful units did not fulfill this tasks. FSCOORDs did not use lethal and nonlethal fires to engage targets. Field artillery units and

radars were positioned to far away from the FLOT to provide adequate support. In some cases, the FSCOORDs did not weight the main effort because the FSCOORDs did not adjust the organization for combat as changes occurred in the scheme of maneuver.

Synchronize fire support. Seven of the eight unsuccessful units did not fulfill this tasks. FSCOORDs did not properly utilize the decide-detect-deliver-assess methodology. Targeting meetings did not produce useful products. In many instances, intelligence and fire support assets were not synchronized. Fire support assets were continually firing on targets with old target data when updated target data was available. Radars were not properly positioned according to the fire support plan.

Sustain fire support. Three of the eight unsuccessful units did not fulfill this task. FSCOORDs did not monitor the amount of ammunition contained in each field artillery unit. Several units ran out of ammunition during the rotations. Also, some FSCOORDs positioned field artillery units too close to the FLOT which caused the destruction of several field artillery units from direct contact with the enemy.

Five Fundamentals For Organizing Field Artillery For Combat

Adequate fire support for committed combat elements. All of the unsuccessful units did not fulfill this fundamental. FSCOORDs were not providing effective SEAD fires to the attack aviation and tactical air assets during deep operations. Poor targeting, not massing fires, and field artillery units out of position during key parts of the battle were also reasons why FSCOORDs did not provide adequate support to the committed units.

Weight the main attack in the offense or the most vulnerable area in the defense. Three of the eight unsuccessful units did not fulfill this fundamental. FSCOORDs did not adjust the organization for combat as the scheme of maneuver changed in the battle. FSCOORDs did not monitor the attrition of the field artillery battalions in the main effort. In several instances, direct support and reinforcing artillery battalions supporting the effort were rendered combat ineffective; however, the maneuver force did not receive additional field artillery units to support them in the main effort.

Facilitate future operations. Three of the eight unsuccessful units did not fulfill this fundamental. FSCOORDs did not monitor the positioning of field artillery units. This caused the destruction of several field artillery units from direct contact with the enemy. These artillery units were needed in future battles but were not available. Also, the deep operations fires in several rotations were ineffective due to poor targeting and a lack of synchronization. Second echelon units that should have been severely atritted during deep operations were committed in future close battles with most of their combat power intact.

Immediately available fire support for the force commander to influence the action. Two of the eight unsuccessful units did not fulfill this fundamental. FSCOORDs in these rotations positioned the field artillery units so far from the FLOT that they could not range many of the targets that the force commander wanted to engage.

Fire Support Planning Principles

Plan early and continuously. Seven of the eight unsuccessful units did not fulfill this principle. Continuous planning did not occur during these rotations. Targeting meetings were ineffective which contributed enormously to the lack of planning during the rotations. Key leaders, such as the aviation brigade commander, G3, and even the force commander where not present during many of these crucial meetings. The targeting meetings did not produce products that were useful. Many of the meetings ended prior to the force commander or his representative making important decisions. Several of the targeting meetings did not focus far enough out in time to include tactical air into future operations.

Follow the commander's targeting guidance. Two of the eight unsuccessful units did not fulfill this principle. In one rotation the FSCOORD did not ensure that the attack guidance matrix was valid. The number of rounds that would be used to attack certain targets would not be enough to cause the desired effects that the force commander wanted. In the other rotation, the FSCOORD did not ensure that field artillery units fired the number of rounds required according to the attack guidance matrix. This led to ineffective fires being placed on the enemy.

Exploit all targeting assets. Five of the eight unsuccessful units did not fulfill this principle. The FSCOORDs did not place radars close enough to the FLOT to take full advantage of their capabilities. Also, the FSCOORDs did not utilize updated target information from UAVs into their fire support plan.

FSCOORDs in several rotations were firing on targets with old targeting data when updated data was available.

Consider the use of all available fire support means, both lethal and nonlethal. Two of the eight unsuccessful units did not fulfill this principle. FSCOORDs in these rotations did not utilize electronic warfare in their fire support plan to attack SEAD targets. The SEAD fires would have been more effective if electronic warfare was combined with lethal fires to attack the enemy air defense artillery units.

Provide adequate fire support. All of the unsuccessful units did not fulfill this principle. FSCOORDs did not provide adequate SEAD fires to protect attack aviation and tactical air assets. FSCOORDs did not ensure that massed fires, both lethal and nonlethal, were used to engage the enemy. Poor targeting meetings contributed to FSCOORDs having problems providing adequate fire support. FSCOORDs must ensure that targeting meetings include the G2, G3, force commander whenever available, DFSCOORD, and aviation brigade commander. These meetings must focus far enough out in time so tactical air can be included in deep operations. Important decisions must be made at these meetings so this updated information can be passed to all fire support units.

Provide rapid and effective coordination. All of the unsuccessful units did not fulfill this principle. Again, FSCOORDs had problems with this because of the ineffective targeting meetings. A lack of training utilizing some of the available fire support assets at BCTP also contributed to the lack of rapid and effective coordination.

Provide for the safeguarding and survivability of friendly forces. Two of the eight unsuccessful units did not fulfill this principle. The major problem that FSCOORDs had in this area was not monitoring the position of field artillery units. Several field artillery units in these rotations were destroyed due to direct contact with the enemy.

This analysis concludes that inadequate fire support contributed to the force commander not being able to accomplish his mission in these eight rotations. Furthermore, fire support provided in these rotations did not fulfill the four basic tasks of fire support. Each rotation violated at least three of the four basic tasks of fire support. Additionally, this analysis concludes that several of the fundamentals for organizing the field artillery for combat and the fire support planning principles were violated which led to the four basic tasks not being fulfilled.

More specifically, this analysis determined that FSCOORDs that did not plan early and continuously and provide rapid and effective coordination did not provide adequate fire support to the force commander. Furthermore, this analysis determined that poor targeting meetings and a lack of training with the fire support assets available at BCTP were significant reasons why FSCOORDs provided ineffective fires. FSCOORDs conducted poor targeting meetings because they were unfamiliar with doctrine. These FSCOORDs did not fully understand the importance of all of the targeting products, the decide-detect-deliver-assess methodology, and the capabilities and limitations of all of the fire support assets.

Endnotes

[1]BCTP AAR, Rotation 9304, III-3-2.

[2]Ibid.

[3]Ibid.

[4]Ibid.

[5]Ibid.

[6]Ibid., III-3-5.

[7]Ibid., III-3-9.

[8]BCTP AAR, Rotation 9307, 28.

[9]Ibid.

[10]Ibid., 25.

[11]Ibid., 27.

[12]Ibid., 29.

[13]Ibid.

[14]Ibid.

[15]Ibid., 31.

[16]Ibid., 32.

[17]BCTP AAR, Rotation 9308, 29.

[18]Ibid., 26.

[19]Ibid.

[20]Ibid., 27.

[21]BCTP AAR, Rotation 9310, 28.

[22]Ibid., 30.

[23]Ibid., 29.

[24]Ibid.

[25]Ibid., 30.

[26]BCTP AAR, Rotation 9311, III-3-3.

[27]Ibid., III-3-11.

[28]Ibid., III-3-8.

[29]BCTP AAR, Rotation 9312, 29.

[30]Ibid.

[31]Ibid.

[32]Ibid., 30.

[33]Ibid., 31.

[34]Ibid., 31.

[35]Ibid., 30.

[36]Ibid., 33.

[37]BCTP AAR, Rotation 9401, III-27.

[38]Ibid., III-30.

[39]Ibid., III-27.

[40]BCTP AAR, Rotation 9411, III-3-2.

[41]Ibid.

[42]Ibid.

[43]BCTP AAR, Rotation 9203, III-3-8.

[44]Ibid., III-3-3.

[45]Ibid., III-3-4.

[46]Ibid., III-3-2.

[47]Ibid., III-3-3.

[48]Ibid., III-3-7.

[49]BCTP AAR, Rotation 9302, III-3-2.

[50]Ibid., III-3-1.

[51]Ibid., III-3-7.

[52]Ibid., III-3-5.

[53]BCTP AAR, Rotation 9309, III-3-2.

[54]Ibid., III-3-5.

[55]Ibid., III-3-1.

[56]Ibid., III-3-6.

[57]BCTP AAR, Rotation 9404, III-31.

[58]Ibid., III-34.

[59]Ibid., III-35.

[60]Ibid., III-36.

[61]BCTP AAR, Rotation 9406, III-33.

[62]Ibid., III-35.

[63]Ibid., III-37.

[64]Ibid.

[65]BCTP AAR, Rotation 9407, III-3-1.

[66]Ibid., III-3-5.

[67]Ibid., III-3-6.

[68]Ibid.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Analysis of the results from the fourteen BCTP rotations supports the conclusion that current field artillery doctrine is adequate to govern the organization and implementation of field artillery units in combat. Moreover, review of applicable secondary material governing the employment of field artillery forces during Desert Storm further underscores the validity of current field artillery doctrine.

Army doctrine governing the evaluation for the effectiveness of fire support; specifically the basic tasks of fire support found in FM 6-20, was validated during the first part of the analysis portion of the thesis. These basic tasks were useful in determining if the fire support provided to the force commander was adequate. In all cases, when the fire support that was provided fulfilled all the basic tasks of fire support, the force commander accomplished his mission and conversely, when fire support did not fulfill the doctrinally delineated basic tasks of fire support, then the force commander did not accomplish his mission. Although the subtasks used for each basic task came from current doctrine, a list of subtasks that support each of the basic tasks is not contained in doctrine. A recommended list of subtasks that

support each of the basic tasks is provided in the recommendation portion of this chapter.

Doctrine for DIVARTY FSCOORDs to provide effective fire support to maneuver forces, specifically, the five fundamentals for organizing field artillery for combat and the fire support planning principles is adequate. The units that had successful rotations were following doctrine. Every unit that accomplished its mission had adequate fire support provided which contributed to successful mission accomplishment. This study found that the fire support provided in these rotations fulfilled the basic tasks for fire support. This study also found that the FSCOORDs in these rotations properly utilized the five fundamentals for organizing field artillery for combat and the fire support planning principles while providing fire support to the force commander.

The analysis did not identify any instances where a unit had been successful by utilizing an operation, method, or procedure that was not supported by doctrine. On the other hand, those units that had unsuccessful rotations were not following doctrine. This study found that in all cases, when the force commander received inadequate fire support, his unit did not accomplish its mission. This study also found that one or more of the basic tasks of fire support were not fulfilled during these unsuccessful rotations. Several of the concepts and principles described in organizing the field artillery for combat and the fire support planning principles were not followed while providing fire support in these unsuccessful rotations which help explain why basic tasks of fire support were not fulfilled.

A comprehensive list does not currently exist that outlines the aspects of doctrine that units are not following during BCTP rotations for a particular time period that led to unsuccessful rotations. It is very useful to have this information available for fire support personnel to review to prevent them from repeating these mistakes. Therefore, included in the recommendation portion of this chapter is a list of common problems that units had from 1992 through 1994 during their BCTP exercises which can be reviewed, published and distributed to division artillery units. This lists contains principles and techniques outlined in doctrine. Reviewing this list of common problem areas will significantly help an organization in its planning, training, and execution during its BCTP exercise. Furthermore, a matrix is provided as figure 2 that depicts the deficient tasks, fundamentals, and principles that were found during each of the unsuccessful rotations.

The field artillery community routinely incorporates lessons learned from operations such as Desert Storm into revisions of doctrine. These are not just hasty changes. The changes are reviewed, tested, and then released within the new doctrine. At the beginning of this thesis, there was a possibility that division artillery units would go through a BCTP rotation and utilize some doctrinal procedures not supported by current doctrine, methods, or techniques that they learned in Desert Storm. Analysis of BCTP exercise results did not disclose any occurrences of nondoctrinal techniques being used in BCTP rotations. Interviews of personnel from the Battle Command Training Program confirmed this analysis. Units attending BCTP have been attempting to utilize the techniques outlined in doctrine. It is clear from the

foregoing analysis that units have unsuccessful rotations because they do not properly utilize doctrine. There is enough flexibility built into doctrine to provide FSCOORDs with the procedures, methods, and techniques to provide maneuver forces with effective fire support during BCTP rotations.

Various techniques and principles are available to FSCOORDs to help them provide adequate fire support. It is an "art" to make the various components of fire support come together to mass combat power on the enemy. It is also an "art" to use the right mix of components in our doctrine to synchronize the fire support system to mass combat power on the enemy. The common problems that units had (listed in the recommendations section) occurred because units were not experienced in the "art" of synchronizing all of the fire support assets available to the DIVARTY during these BCTP rotations. The reason why DIVARTY personnel are not experienced in the "art" of providing effective fire support is a lack of adequate training. Division staff members can not escape the need to conduct effective training. The 5th Infantry DIVARTY highlighted the need for units to have regular access to the joint exercise simulation system used to drive BCTP Warfighter exercises in an article in the Field Artillery Journal.[1] Units need to participate in BCTP type exercises throughout the year to train with those assets that they can not train with at their home station, such as coordinating close air support and conducting effective SEAD plans for cross FLOT operations.

Lessons learned from Desert Storm indicated that units conducted operations in a doctrinal manner and they achieved their assigned

missions in an outstanding manner. Furthermore, these lessons learned indicated that rehearsing these doctrinal tasks prior to the ground war was responsible for much of the success.[2] Units truely fight as they train. For this reason, it is imperative that units maximize the training opportunities at BCTP. Units must not waste valuable time reviewing doctrine during their BCTP rotation. Doctrine must be reviewed, understood, and rehearsed prior to attending BCTP to enable units to obtain the maximum training benefit from every BCTP rotation. If units are not able to train on certain tasks during their BCTP rotation because they had to spend valuable time relearning doctrine, then that unit will not be prepared to fight the next war at the level of readiness that they should be.

Recommendations

The following recommendations are directed toward the field artillery community, the decision makers at the Battle Command Training Program, and the Command and General Staff College. There are two recommendations for the field artillery community. These recommendations are solely based on the research and analysis of this thesis concerning division field artillery doctrine and its use during BCTP exercises and should not be taken out of context.

More frequent BCTP rotations for division artillery units is required. This must be done if division artillery units are expected to provide effective fire support to the maneuver force during BCTP rotations. Some units are not able to adequately train with some fire support assets at their home station and they have to sacrifice a part of their rotation to develop these skills.

Sometimes significant blocks of time during a rotation is sacrificed because the skills are not developed quickly enough. All division artillery units would benefit greatly by participating in a BCTP type exercise with only division artillery personnel as the players. This exercise should be conducted in a simulation center similar to the BCTP simulation center. This training would provide an opportunity for all division artillery personnel to review and utilize current fire support doctrine. This training for division artillery personnel should occur within thirty days of every division level BCTP exercise to ensure that the DIVARTY personnel are sufficiently trained to provide effective fire support to the force commander.

In summary, although the subtasks used to analyze each of the basic tasks of fire support came from current doctrine, a list that was compiled to assist in the analysis of each BCTP rotation is not included in doctrine. A recommended list of these key subtasks is provided for review and incorporation into future doctrine. These tasks are guidelines. They represent the "science" of providing adequate fire support to force commanders. The tasks must be evaluated according to the current situation when applying them in the "art" aspect of providing adequate fire support to force commanders.

Criteria for Evaluation of Fire Support Effectiveness

Support Forces in Contact

1. Provide fire support in the close, deep, and rear areas.

2. Ensure the fire support provided in the close battle is adequate for the maneuver force.

3. Deep fires must disrupt, delay, destroy enemy follow-on forces in accordance with the maneuver commander's intent before these enemy forces can participate in the close fight.

4. Counterfire must destroy, neutralize, or suppress enemy indirect fire weapons in accordance with the maneuver commander's intent.

5. Provide SEAD fires immediately prior to and during the flight of friendly aircraft in our area of operations.

6. Responsive fire support must protect and ensure freedom of maneuver to friendly forces in contact with the enemy in deep, close, and rear operations.

Support the Force Commander's Battle Plan

1. Fire support must be responsive and thoroughly supportive of the maneuver commander's concept of the operation.

2. There must be an adequate amount of fire support assets readily available to the maneuver commander to influence the battle quickly and decisively whenever required.

3. Ensure there are enough fire support assets available to engage HPTs throughout the depth of the battlefield, conduct the counterfire battle, and support the rear area with fires.

4. Support the maneuver commander's plan with all available lethal and non-lethal fire support assets.

Synchronize Fire Support

1. Synchronize all fire support assets to attack the enemy with the most combat power available.

2. Fire support planning must be accomplished concurrently with the development of the scheme of maneuver.

3. The fire support plan must be revised as the scheme of maneuver changes.

4. Properly utilize the decide, detect, deliver, and assess methodology to ensure that the right targets are attacked with the best fire support asset at the right time.

5. Rehearse the fire support plan in conjunction with the operations plan to help synchronize fire support with the other BOSs.

Sustain Fire Support

1. Provide adequate logistic support to fire support assets.

2. Ensure that there is redundancy in the command and control facilities.

3. Ensure continuous training occurs for all fire support personnel.

4. Ensure all fire support assets receive adequate protection by utilizing proper positioning and providing adequate security forces.

One recommendation is directed toward the decision makers at the Battle Command Training Program. More information should be published outlining the results and lessons learned by units attending BCTP. The Battle Command Training Program in conjunction with personnel from the Field Artillery School should publish articles similar to the type and frequency that are published concerning lessons learned at NTC. In addition to these articles, it would be very useful to have a list of common problems that units had from 1992 through 1994 during their BCTP exercises that contributed to unsuccessful rotations.

BCTP, in conjunction with the Field Artillery School, should review, publish, and distribute this list to division artillery units for use in their preparations for BCTP rotations.

Common DIVARTY problems at BCTP from 1992 through 1994

The following problem areas occurred in at least two of the eight unsuccessful rotations that were analyzed. They are divided into three sections: the four basic tasks of fire support, the five fundamentals of organization for combat and the fire support planning principles. The problem areas listed were discussed in detail in the previous chapter. Figure 2 depicts which BCTP rotations were deficient in the areas listed below.

Basic Tasks for Fire Support

1. Support forces in contact.
2. Support the force commander's battle plan.
3. Synchronize fire support.
4. Sustain fire support.

Organization for Combat

1. Adequate fire support for committed combat elements.
2. Weight the main attack in the offense or the most vulnerable area in the defense.
3. Facilitate future operations.
4. Immediately available fire support for the force commander to influence the action.

Fire Support Planning Principles

1. Plan early and continuously.

2. Follow the commander's targeting guidance.

3. Exploit all targeting assets.

4. Consider the use of all available fire support means, both lethal and nonlethal.

5. Provide adequate fire support.

6. Provide rapid and effective coordination.

7. Provide for the safeguarding and survivability of friendly forces.

This next recommendation is directed to the Command and General Staff College. The CGSC Tactics Department should incorporate the material avalable in the Combat Training Center Warrior Information Network (CTCWIN) library in Bell Hall in the core course of instruction, specifically C310. All the members within a staff group can analyze the same rotation and each BOS expert can give a 10 - 15 minute brief on the conduct of operations and the results of the rotation according to their BOS. Many CGSC students have been away from the "real" army at least one year and some even longer. The terminology used throughout these documents would be a great refresher of the terms used during this school year and our profession of arms. In addition to this, group discussions could highlight the effects of deficiencies occuring in one BOS area to their own BOS area. Students could also discuss the importance of synchronization between the different BOSs and the problems that occur when battle plans are not synchronized. There is so much information available and the CGSC class as a whole is not getting

a fraction of the benefits of having it collocated with the Command and General Staff College.

Endnotes

[1] Colonel Robert S Ballagh, Jr. and Major Virgildee Daniel, "BCTP Warfighter and the Heavy Division," Field Artillery (June 1990): 49.

[2] Captain Richard A. Lacquement, Captain Joseph V. Pacileo, and Captain Paul A.F. Gallo, "Targeting During Desert Storm," Field Artillery (February 1992): 38.

GLOSSARY

Battlefield Operating Systems. The major functions performed by the force on the battlefield to successfully execute Army operations in order to accomplish military objectives directed by the operational commander; they include maneuver, fire support, air defense, command and control, intelligence, mobility and survivability, and combat service support.

Branch. A contingency (an option built into the basic plan) for changing the disposition, orientation, or direction of movement of the force.

Close Support Fires. Fires used to engage enemy troops, weapons, or positions that are threatening or can threaten the force in either the attack or the defense. They allow the commander to rapidly multiply combat power effects and shift fires quickly about the battlefield.

Counterfires. Used to attack enemy indirect-fire systems, to include mortar, artillery, air defense, missile, and rocket systems. Observation posts and field artillery command and control facilities are also counterfire targets. Counterfire allows freedom of action to supported maneuver forces and is provided by mortars, cannons, guns, and aircraft. Within the field artillery, counterfire is normally the primary responsibility of general support and general support reinforcing units; however, it may be fired by any unit.

Destruction. Puts a target out of action permanently. Usually, destruction requires large expenditures of ammunition and is not considered economical.

Direct Support. A battalion operating in direct support of a maneuver brigade is concerned primarily with the field artillery support needs of only that brigade. The direct support battalion commander is the FSCOORD for the supported maneuver force. Fires are planned and coordinated with the maneuver unit, and the direct support battalion commander positions his unit where it can best support the scheme of maneuver. If the battalion cannot provide the support required for a planned scheme of maneuver, the fire support coordinator must inform the supported maneuver commander. The same battalion should support the same maneuver force habitually to enhance coordination and the training effort. Direct support is the most decentralized standard tactical mission.

Fire support. The collective and coordinated employment of the fires of armed aircraft, land- and sea-based indirect fire systems, and electronic warfare systems against ground targets to support land combat operations at both the operational and tactical levels. It is the integration and synchronization of fires and effects to delay, disrupt, or destroy enemy forces, combat fuctions, and facilities in pursuit of operational and tactical objectives. Synchronizing fires with maneuver is critical to the successful prosecution of combat operations. Fire support is the function that binds fire resources together so that the multiple effects of each asset are synchronized with the force commander's intent and concept of operation.

Fire Support Assets. The effective coordination of fire support assets helps the maneuver commander achieve maximum combat power through synchronization. They include: field artillery, mortars, naval gunfire, tactical air, attack helicopters, and electronic warfare.

Fire Support Coordinator. Fire support cells are organized to facilitate the coordination and execution of the fire support system. The functions of the fire support cells are supervised by the force artillery commander, who acts as the fire support coordinator (FSCOORD). The FSCOORD translates the recommended course of action selected by the G3, G2, and himself into a recommendation which adresses the allocation of fire support resources, artillery organization for combat, command and control relationships, and priority of effort.

Force Commander. Field artillery tactical missions are assigned by the force commander (maneuver commander) on the advice of the force field artillery commander, who is the fire support coordinator for the maneuver force.

General Support. A battalion assigned the mission of general support supports the force as a whole and stays under the immediate control of the force artillery headquarters. This mission makes artillery immediately responsive to the needs of the force commander. It is the most centralized of the standard tactical missions.

General Support Reinforcing. The general support reinforcing mission requires the field artillery battalion to furnish artillery fires for the force as a whole and to reinforce the fires of another field artillery battalion as a second priority. A general support reinforcing battalion remains under the control of the force artillery

headquarters, which has priority of fires. The general support reinforcing mission offers the force commander flexibility to meet the requirements of a variety of tactical situations.

High Payoff Target. High value targets that must be successfully acquired and attacked to contribute substantially to the success of friendly operations. They are developed on the basis of METT-T and are not dependent on the ability of the unit to acquire or attack them. If a high payoff target is beyond the capability of the unit to acquire, then it should be passed to the next higher echelon as a priority intelligence requirement.

High Value Target. Targets deemed important to the enemy commander for the successful accomplishment of his mission. The loss of high value targets can be expected to contribute to a substantial degradation of an important enemy battlefield function.

Interdiction Fires. Fires used to disrupt, delay, and destroy enemy forces that, because of range limitations or intervening terrain, cannot fire their primary weapon systems on friendly forces. Interdiction fires create "windows" for friendly unit offensive maneuver.

Neutralization. Neutralization knocks a target out of action temporarily. Neutralization does not require an extensive expenditure of ammunition and is the most practical type of mission. Most missions are neutralization fire.

Nonstandard field artillery tactical mission. If the commander's intent cannot be accurately conveyed with one of the standard field artillery tactical missions outlined in doctrine, then a

nonstandard mission may be assigned. Nonstandard missions amplify, limit, or change one or more of the seven inherent responsibilities or spell out contingencies not covered by those responsibilities. This is normally done if there is not enough field artillery to cover all the contingencies and/or when a field artillery battalion is assigned more than one functional mission.

Reinforcing. Reinforcing is a tactical mission that causes one field artillery battalion to augment the fires of another field artillery battalion. When one direct support field artillery battalion needs additional fires to meet the field artillery support needs of a maneuver force, the reinforcing mission may be assigned to another field artillery battalion.

Sequel. A major operation that follows an initial major operation. Plans for sequels are based on the possible outcome-victory, stalemate, or defeat-of the current operation.

Suppression. Suppression of a target limits the ability of the enemy personnel in the target area to perform their jobs. The effect of suppressive fires usually lasts only as long as the fires are continued. Suppression requires a low expenditure of ammunition; however, since its effects are not lasting, it is unsuitable for most targets.

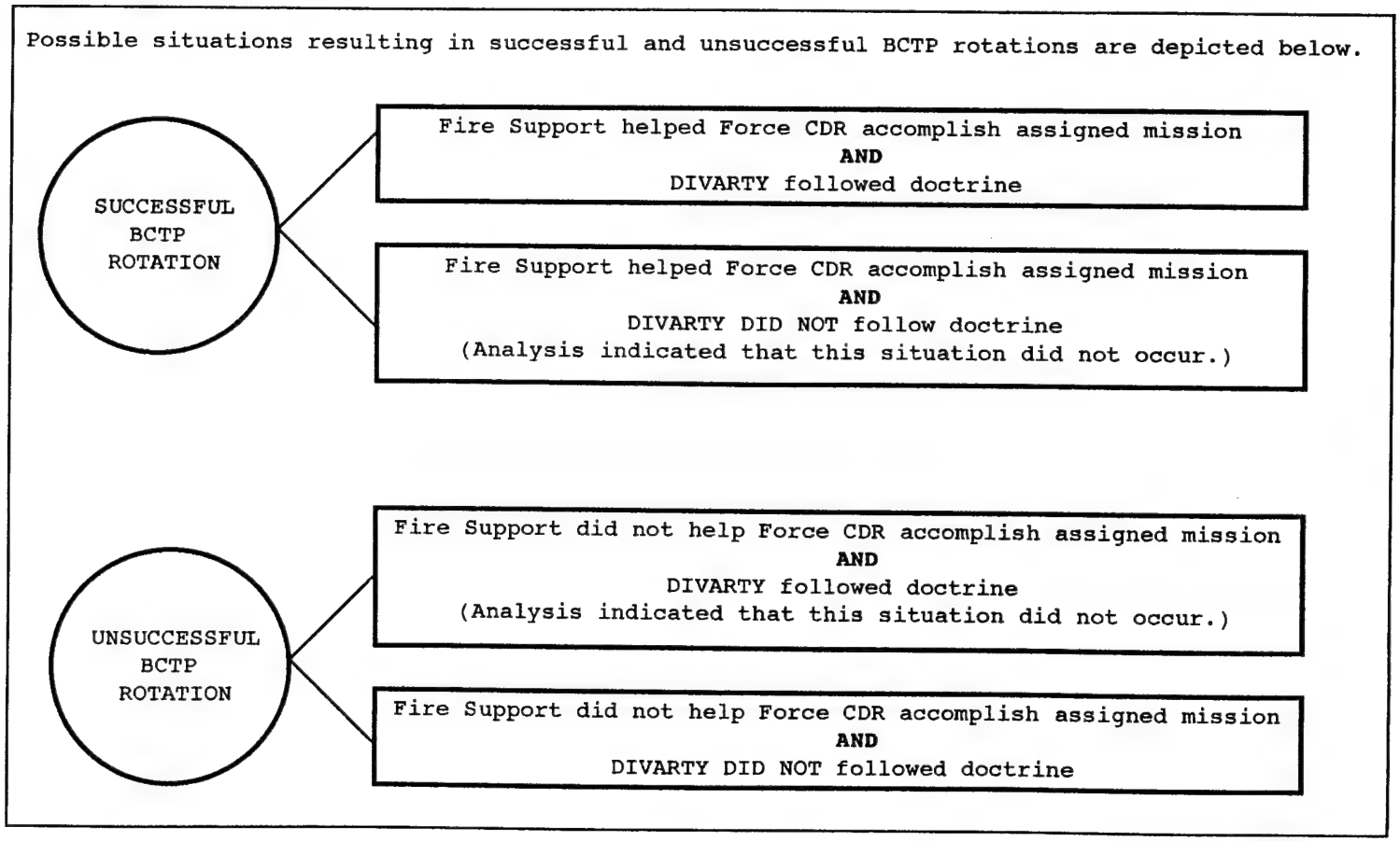

Fig. 1. Possible situations resulting in successful and unsuccessful BCTP rotations are graphically depicted above.

BASIC TASKS OF FIRE SUPPORT	BCTP ROTATIONS							
	9304	9307	9308	9310	9311	9312	9401	9411
Support forces in contact	X	X	X	X	X	X	X	X
Support the force CDR's battle plan	X	X	X	X	X	X	X	X
Synchronize fire support	X	X	X	X		X	X	X
Sustain fire support		X		X	X			

FUNDAMENTALS FOR ORGANIZING FA FOR COMBAT	9304	9307	9308	9310	9311	9312	9401	9411
Adequate fire support for committed units	X	X	X	X	X	X	X	X
Weight the main attack				X	X			X
Facilitate future operations				X	X	X		
Immediately available fire support		X			X			

FIRE SUPPORT PLANNING PRINCIPLES	9304	9307	9308	9310	9311	9312	9401	9411
Plan early and continuously	X	X	X	X		X	X	X
Follow the commander's targeting guidance						X	X	
Exploit all targeting assets		X	X			X	X	X
Use all available fire support: Lethal/Nonlethal	X			X				
Provide adequate fire support	X	X	X	X	X	X	X	X
Provide rapid and effective coordination	X	X	X	X	X	X	X	X
Provide safeguarding of friendly units				X	X			

Fig. 2. Deficient doctrinal tasks, fundamentals and principles in unsuccessful BCTP rotations. This information was compiled from BCTP Exercise AARs from 1992 through 1994.

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